

**DESCRIPTION**

<b>Species Reactivity</b>	Human/Mouse
<b>Specificity</b>	Detects human Aldehyde Dehydrogenase 1-A1/ALDH1A1 in direct ELISAs and detects human and mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 in Western blots.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Aldehyde Dehydrogenase 1-A1/ALDH1A1 Ser2-Ser501 Accession # P00352
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

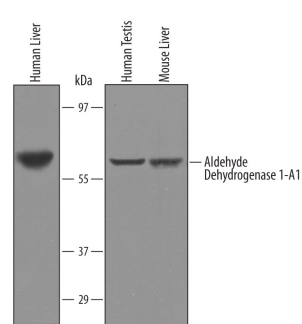
**APPLICATIONS**

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	1 µg/mL	See Below
<b>Immunocytochemistry</b>	5-15 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below
<b>Immunoprecipitation</b>	25 µg/mL	Cell lysates spiked with Recombinant Human Aldehyde Dehydrogenase 1-A1 (Catalog # 5869-DH), see our available <a href="#">Western blot detection antibodies</a>
<b>Simple Western</b>	10 µg/mL	See Below

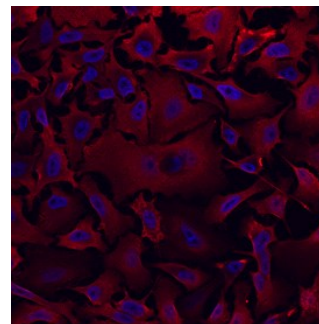
**DATA**

**Western Blot**



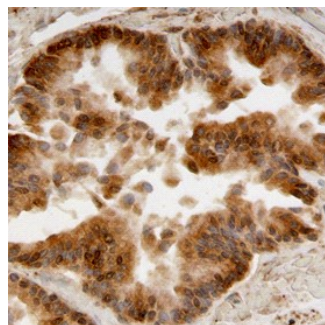
**Detection of Human and Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Western Blot.** Western blot shows lysates of human liver tissue, human testis tissue, and mouse liver. PVDF Membrane was probed with 1 µg/mL of Goat Anti-Human/Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF5869) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF019). A specific band was detected for Aldehyde Dehydrogenase 1-A1/ALDH1A1 at approximately 56 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 8](#).

**Immunocytochemistry**



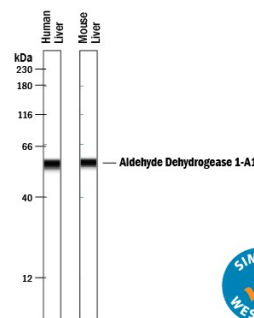
**Aldehyde Dehydrogenase 1-A1/ALDH1A1 in HeLa Human Cell Line.** Aldehyde Dehydrogenase 1-A1/ALDH1A1 was detected in immersion fixed HeLa human cervical epithelial carcinoma cell line using Goat Anti-Human/Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF5869) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to cell surfaces and cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

**Immunohistochemistry**



**Aldehyde Dehydrogenase 1-A1/ALDH1A1 in Human Prostate Cancer Tissue.** Aldehyde Dehydrogenase 1-A1/ALDH1A1 was detected in immersion fixed paraffin-embedded sections of human prostate cancer tissue using Goat Anti-Human/Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF5869) at 10 µg/mL overnight at 4 °C. Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Specific staining was localized to the cytoplasm of glandular epithelial cells. View our protocol for [Chromogenic IHC Staining of Paraffin-embedded Tissue Sections](#).

**Simple Western**



**Detection of Human and Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Simple Western™.** Simple Western lane view shows lysates of human liver tissue and mouse liver tissue, loaded at 0.2 mg/mL. A specific band was detected for Aldehyde Dehydrogenase 1-A1/ALDH1A1 at approximately 57 kDa (as indicated) using 10 µg/mL of Goat Anti-Human/Mouse Aldehyde Dehydrogenase 1-A1/ALDH1A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF5869) followed by 1:50 dilution of HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF109). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"><li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li><li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li><li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li></ul>

**BACKGROUND**

Aldehyde dehydrogenases (ALDHs) are NAD(P)<sup>+</sup>-dependent enzymes that detoxify aldehydes by oxidizing them to carboxylic acids. Nineteen ALDHs are present in humans, expressed in a variety of organelles and having different substrate preferences (1). ALDH1A1 is a cytosolic enzyme that preferentially oxidizes retinaldehyde to retinoic acid (2). ALDH1A1 is expressed in the epithelium of many organs, including brain, liver, testis, eye lens and cornea (3). ALDH1A1 is highly expressed in brain dopaminergic neurons, where it produces the retinoic acid required for their differentiation and development (4). The retinoic acid produced by ALDH1A1 is also important for the differentiation of hematopoietic stem cells (5). ALDH1A1 is a major enzyme in the oxidation of acetaldehyde, a toxic metabolite of ethanol (6).

**References:**

1. Marchitti, S.A. *et al.* (2008) *Expert Opin. Drug Metab. Toxicol.* **4**:697.
2. Zhao, D. *et al.* (1996) *Eur. J. Biochem.* **240**:15.
3. King, G. and R. Holmes (1997) *Adv. Exp. Med. Biol.* **414**:19.
4. Jacobs, F.M. *et al.* (2007) *Development* **134**:2673.
5. Chute, J.P. *et al.* (2006) *Proc. Natl. Acad. Sci. USA* **103**:11707.
6. Ueshima, Y. *et al.* (1993) *Alcohol Alcohol.* **1B**:15.